The Role of Universities in Society: Challenges Ahead

Prof. Dr. Bernd Huber,
President of LMU Munich
What should you know about Munich?

3 Things:

• FC Bayern München

• Oktoberfest

• LMU Munich
What should you know about LMU Munich?

- Founded in 1472
- Comprehensive university: arts and humanities, social science, medicine, natural and life sciences
- ~ 50,000 students, 1,400 doctoral degrees awarded p.a.
- ~ 200 degree programs
- ~ 700 professors
- ~ 6,500 academics
I. Introduction

II. The Modern University System

III. Challenges for the Future

IV. What is (will be) the Role of Comprehensive Universities?

V. Conclusions
II. The Modern University System

1. Huge expansion of the university system
   a) Student numbers

   • Total number of students in France, Germany and the UK before WWII: 150,000
   • Number of students in the greater area of London in 2013: 370,000
   • Increase worldwide:
     1900: 500,000
     2000: 100 Mio.
     2035: 520 Mio. (estimated)

Sources:
Hobsbawm (2013)
Schofer & Meyer (2005)
Calderon (2012)
b) Number of Universities

19,000 worldwide

c) Research Output

Number of annual publications in journals in science, engineering and social sciences:

1950s  ~ 50,000
2008  ~ 0.8 million
2013  ~ 1.4 million

Sources:
Siwinski (2015)
HESA, Jones (2010)
2. Key Features of the Modern University System

- Academic freedom
- Autonomy of universities
- Peer review for research funding
- Competition among universities

But: a lot of variation across countries and universities

Source: Huber (2015)
III. Challenges for the Future

1. Perspectives for Higher Education

High and increasing College Wage Premium

Source: James (2012)
A closer look on the history of the College Wage Premium

Source: Goldin & Katz (2007)
College Wage Premium

- Is determined by complex interaction of technology, labor demand and supply, as well as educational choices
- Can significantly vary over time
The Role of Academic Subjects:

Premiums for four-year and advanced degrees in categories of majors

Source: James (2012)
College Wage Premium

• Significantly varies across academic subjects: 40% (e.g. psychology) vs. 125% (e.g. engineering)

• Individual educational choices on the basis of separating average and marginal returns
Wage Premium for postgraduates: Good news for universities

Table 2: Wage Differentials by Education

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>College Degree or Higher</td>
<td>0.337</td>
<td>0.416</td>
<td>0.384</td>
<td>0.529</td>
<td>0.628</td>
<td>0.682</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.006)</td>
<td>(0.008)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Postgraduate Degree</td>
<td>0.338</td>
<td>0.455</td>
<td>0.470</td>
<td>0.641</td>
<td>0.768</td>
<td>0.856</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.013)</td>
<td>(0.010)</td>
<td>(0.009)</td>
<td>(0.010)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>College Degree Only</td>
<td>0.337</td>
<td>0.402</td>
<td>0.344</td>
<td>0.476</td>
<td>0.555</td>
<td>0.583</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.009)</td>
<td>(0.007)</td>
<td>(0.007)</td>
<td>(0.008)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Postgraduate Degree Versus College Degree Only</td>
<td>0.001</td>
<td>0.053</td>
<td>0.125</td>
<td>0.165</td>
<td>0.214</td>
<td>0.273</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.014)</td>
<td>(0.010)</td>
<td>(0.010)</td>
<td>(0.011)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Sample Size</td>
<td>12100</td>
<td>23217</td>
<td>29546</td>
<td>34944</td>
<td>29436</td>
<td>41961</td>
</tr>
</tbody>
</table>

Source: Lindley & Machin (2013)
College Wage Premium

- Wage differential for postgraduates has continuously increased over the last 50 years

- According to Lindley & Machin (2013), this increasing wage differential is largely a result of technological change

- But ...
Cost of Higher Education

Common agreement: education is the key to a successful professional career

Dramatic increase in the cost of higher education

Source: Kolet (2012)
2. Research Activities

a) The Quality of Research

It is probably “hard to reproduce at least three quarters of all published bio-medical findings”
[The Economist (19 October 2013), p. 21.]

- Reforming the peer review process
- More incentives for studies reproducing existing results
b) The Process of Research

(i) Increasing specialisation
   „Death of the Renaissance Man“
   ➢ Effects on the design of research grants

(ii) The burden of knowledge
   ➢ Effects on academic careers

(iii) The role of research teams
   ➢ e.g. research prizes for teams

Sources:
Azoulay & Graff-Zivin (2012)
Jones (2005), Jones (2010)
c) The Benefits of Research

Basic research (at universities) as a key driver for innovation and economic growth

- Evidence for high benefits of basic research
  
  e.g. Goodridge et al (2015) estimate the social return on basic research in the UK at 20%

- Great expectations of significant contributions of basic research concerning the “Great Challenges”

- but…
There are also sceptics:

- Robert Gordon (2012)
- Larry Summers (2013/2014)
Will we ever invent anything this useful again?

The growing debate about dwindling innovation
Debate about the Role of Research at Universities

e.g. Dabars/Crow (2015), Dirks (2015)
## 3. Online Learning

Rapid expansion of online learning:

<p>| TABLE 1—ENROLLMENT IN ONLINE COURSES BY UNDERGRADUATE, DEGREE-SEEKING U.S. STUDENTS, 2013 |
|---------------------------------|----------------------------------|-------------------------------|---------------------------------|----------------------------------|------------------------------|-----------------------------|</p>
<table>
<thead>
<tr>
<th></th>
<th>All Online (1)</th>
<th>Some Online (2)</th>
<th>No Online (3)</th>
<th>Total (000) (4)</th>
<th>Students Enrolled in All Online Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>In State (5)</td>
<td>0.820</td>
<td>0.103</td>
<td>0.003</td>
<td>32.6</td>
<td></td>
</tr>
<tr>
<td>Out of State (6)</td>
<td>0.610</td>
<td>0.358</td>
<td>0.024</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>Outside U.S. (7)</td>
<td>0.781</td>
<td>0.175</td>
<td>0.014</td>
<td>320.8</td>
<td></td>
</tr>
<tr>
<td>Total (000) (8)</td>
<td>0.917</td>
<td>0.045</td>
<td>0.006</td>
<td>534.7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>All Students</th>
<th>Total (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public 4-year, selective</td>
<td>0.015</td>
<td>2,061</td>
</tr>
<tr>
<td>Private not-for-profit 4-year, selective</td>
<td>0.010</td>
<td>1,110</td>
</tr>
<tr>
<td>Public 4-year, not selective</td>
<td>0.074</td>
<td>4,335</td>
</tr>
<tr>
<td>Public 2-year, not selective</td>
<td>0.095</td>
<td>5,630</td>
</tr>
<tr>
<td>Private not-for-profit 2-year, not selective</td>
<td>0.176</td>
<td>1,679</td>
</tr>
<tr>
<td>For-profit, independent</td>
<td>0.085</td>
<td>486,865</td>
</tr>
<tr>
<td>For-profit, chain</td>
<td>0.542</td>
<td>1,074</td>
</tr>
<tr>
<td>Total</td>
<td>0.111</td>
<td>16,376</td>
</tr>
</tbody>
</table>

„Clicks Instead of Bricks“?

Difficult to answer, but key factors are:

- Demand of employers for graduates with online versus traditional (residential) education
- Cost of online vs. residential education „Bending the cost curve“
- Quality of online education
- Complementarity or substitutability of online and residential learning
IV. What is (will be) the Role of Comprehensive Universities?

1. Universities are (very often) comprehensive

Comprehensive university: Covering to a large extent the fields of arts and humanities, social science, science, medicine (and engineering)

Examples:

• Top 10 universities in the Shanghai Ranking are comprehensive universities, e.g. Harvard, Oxford, Cambridge, Standford, Berkeley

Source: ARWU (2015)
There are some exceptions:

• Imperial College London
• London School of Economics
• Karolinska Institutet in Sweden

But specialized universities often try to enlarge their range of subjects
• Shanghai Jiao Tong University
2. Why are so many universities comprehensive?

Somewhat counterintuitive:

• Benefits of specialisation

• Benefits of concentrating on core activities

No easy answer
Basic Idea:

Interaction between different academic subjects and departments generates benefits

A university is more than the sum of its parts
3. Possible Reasons

a) Attracting the best students

b) Risk diversification

c) Stimulating a creative atmosphere

d) Fostering interdisciplinary research

e) Strengthening and improving competition within the university
4. Challenges for Comprehensive Universities

- Online learning and digitalization
- Growth of knowledge
- The role of research at universities

Source: Huber (2015)
V. Conclusions

- Huge expansion of the university system
- High wage premiums for higher education
- The future of research at universities
- The impact of online learning
Thank you very much for your attention!
Additional References:


